Drop splash on a dry, smooth surface: theory JOSE MANUEL
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ROBKIN, University of East Anglia — In this presentation we develop a theoret-
ical model that faithfully predicts, in wide ranges of values of the Ohnesorge and
Reynolds numbers, the initial instant at which a high speed sheet is ejected as a
result of the impact of a drop onto a dry, smooth substrate. Moreover, the model is
able to faithfully reproduce the temporal evolution of the tip of the sheet. We also
find that, while the role of the entrapped air bubble can be neglected in the sheet
ejection process, the role of air is critical in the dewetting process of the tip of the
sheet from the substrate. The splash transition predicted in the Re-Oh and gas to
liquid viscosity ratio, agree well with experimental observations.

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